

Summary Report

Repairs to Vehicle Washrack at Building 388
Solid Waste Management Unit (SWMU) Number 201
Petroleum Corrective Action Program
Marine Corps Air Station, El Toro, California

23 July 1998

Prepared by
Southwest Division, Naval Facilities Engineering Command
BRAC Operations Office
1420 Kettner Boulevard, San Diego, CA 92101

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Section 1 *Introduction*

The purpose of this Summary Report is to present information pertaining to the repairs to the concrete surface of the vehicle washrack located adjacent to Building 388 at the Marine Corps Air Station (MCAS), El Toro. Petroleum hydrocarbons were identified in the shallow soils beneath the washrack during the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA), and the washrack was designated Solid Waste Management Unit (SWMU) Number 201 in the RFA reports. Cracks in the surface of the washrack were also identified, and the RFA reports included the recommendation that the cracks be repaired in order to reduce the migration of residual petroleum hydrocarbons. The repairs to the cracks in the washrack surface were the primary objectives of this project. This report also includes a brief discussion of the information collected during the RFA and other previous investigations and a recommendation that no further action status be requested for this site.

The Marine Corps Air Station, El Toro, also known as the Station, comprises approximately 4,700 acres and is located in eastern Orange County approximately 45 miles southeast of Los Angeles, California. Building 388 and the adjacent vehicle washrack, SWMU 201, are located in the southwest section of the Station within the Combat Service Support Detachment (CSSD) compound. The CSSD provides the Third Marine Air Wing with essential services including intermediate maintenance of engineer, motor transport, and ordnance equipment.

SWMU 201 is also located within the boundary of Installation Restoration Program (IRP) Site 24 (Volatile Organic Compound (VOC) Source Area) as shown on Figure 1. Chlorinated solvents, including trichloroethylene (TCE), have been detected in the vadose zone and in the ground water beneath IRP Site 24.

The Station is preparing for closure in July 1999 in accordance with the Base Closure and Realignment Act of 1993 (BRAC III). SWMU 201 is located within a 124-acre parcel tentatively identified as a cargo area according to the El Toro Community Reuse Plan (County of Orange, 1997) as shown on Figure 2.

Section 2

Field Activities and Previous Investigations

SWMU 201, the vehicle washrack located adjacent to Building 388 within the CSSD compound, was visually inspected by representatives from Southwest Division, Naval Facilities Engineering Command (SWDIV) in July 1998 in order to prepare for the field activities. Photographs from the site inspections are presented in Appendix A. The RFA Report (JEG, 1993) identifies the dimensions of the washrack as approximately 18 feet by 30 feet. The washrack is constructed of portland cement concrete and is located on the south-southwest end of Building 388. A concrete berm, approximately 3 inches high, surrounds the washrack slab and prevents the flow of water onto the adjacent asphalt pavement parking area.

Two control joints were placed in the washrack surface in a cross pattern during the construction of the concrete slab. One control joint is approximately 30 feet long and the other control joint is approximately 18 feet long. Each control joint is approximately 1/4 inch to 1/2 inch wide and approximately 1-1/2 to 2 inches deep. The control joints do not extend through the slab. Some minor spalling and cracking has occurred along these joints. The control joints at SWMU 201 and selected nearby features are shown on Figure 3.

Combat support vehicles including jeeps and trucks are washed at SWMU 201. Water from the washrack is conveyed through a drain at the center of the washrack through the oil/water separator (OWS 760B) west of Building 760 to the sanitary sewer.

Existing historical records from previous surveys and sampling activities at or near SWMU 201 were collected and reviewed for this project. Extracts from the pertinent reports are presented in Appendix B.

2.1 Repairs to Cracks

Repairs to the surface cracks along the control joints in SWMU 201 were implemented following the SWDIV inspection of July 1998. A concrete repair compound was used to seal the cracks on 17 July 1998. Water was applied along the control joints on 21 July 1998 to verify the achievement of the project objectives. Water was not observed to flow through the cracked areas of the slab to the subsurface soils. The repairs successfully reduce the migration of residual petroleum hydrocarbons located beneath the washrack slab. The residual petroleum hydrocarbon concentrations are discussed in Section 2.2.

2.2 Resource Conservation and Recovery Act (RCRA) Facility Assessment

SWMU 201 was inspected and samples were collected during the RFA. The results of the RFA Sampling Visit are published in the *Installation Restoration Program, Final Resource Conservation and Recovery Act Facility Assessment Report for Marine Corps Air Station, El Toro, California* (Jacobs Engineering Group (JEG), 1993).

The RFA Visual Site Inspection of SWMU 201 was conducted in April 1991. Cracks in the surface of the washrack were documented during the inspection, and the recommendation to conduct a Sampling Visit was presented.

During the Sampling Visit, nine (9) soil samples were collected from four (4) five-foot deep borings through the washrack surface. Boring locations were marked with a metallic plate as shown on Photograph 3 in Appendix A. Samples were collected at depths of 2 and 5 feet below ground surface from borings 201H1, 201H2, 201H3, and 201H4. Samples were analyzed by Environmental Protection Agency (EPA) Method 418.1 (Total Recoverable Petroleum Hydrocarbons (TRPH)) and EPA Method 8240 (Volatile Organic Compounds (VOCs)). TRPH and VOCs were not detected at or above laboratory reporting limits for samples collected from three of the four borings. TRPH was identified at concentrations of 4,133 and 233 milligrams per kilogram at depths of 2 and 5 feet below ground surface, respectively, in boring 201H3. Xylenes were also identified at a concentration of 8 "J" milligrams per kilogram from the 2-foot sample from boring 201H3; the result was qualified as an estimated value. Extracts from the RFA documentation are presented in Appendix B.

2.3 Remedial Investigation Soil Gas Survey

During the Phase I Remedial Investigation of IRP Site 24, a soil gas survey was conducted that included the vicinity of Building 388. Samples were collected from depths of 20 feet or less for analysis of Volatile Organic Compounds (VOCs) and Total Petroleum Hydrocarbons (TPH). The results of the survey are published in the *Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Remedial Investigation/Feasibility Study, Final Soil Gas Survey, Technical Memorandum, Sites 24 and 25* (Jacobs Engineering Group (JEG), 1994).

The nearest sampling point, 24_SG464, was located approximately 50 feet west-northwest of SWMU 201 as shown on Figure 3. The sample was collected from a depth of 15 feet below ground surface and no volatile organic compounds or petroleum hydrocarbons were detected in this sample.

2.4 Ground Water Conditions

Ground water conditions have been investigated in the vicinity of SWMU 201 during the Remedial Investigation of IRP Site 24 (the VOC Source Area) and IRP Site 7 (Drop Tank Drainage Area Number 2). The nearest monitoring well, 07_DGMW72, is located approximately 50 feet east of SWMU 201. The screened interval of Well 07_DGMW72 is from 110 to 150 feet below ground surface. The water level is approximately 100 feet below ground surface, and the gradient is northwest. Water samples collected from Well 07_DGMW72 contained trichloroethylene (TCE), tetrachloroethylene, and carbon tetrachloride during sampling activities conducted during the period from 1991 through 1997 (CDM, 1997). The maximum TCE concentration in a water sample from well 07_DGMW72 was 120 micrograms per liter measured in November 1992.

The nearest agricultural production well, TIC-55, is located approximately 3,000 feet north-northwest of SWMU 201.

SWMU 201 is located above the VOC plume in the shallow aquifer at IRP Site 24 as shown in Figure 4. The presence of TCE and other volatile organic compounds is believed to be associated with the sources identified in IRP Site 24 rather than with the residual petroleum hydrocarbons located beneath SWMU 201. The ground water conditions in the vicinity of SWMU 201 will be addressed in the Record of Decision for IRP Site 24.

Section 3

Conclusions and Recommendations

The following conclusions are based upon existing information from previous field investigations and the recently completed repairs to the washrack surface:

- The surface of the vehicle washrack - SWMU 201 - at Building 388 has been repaired by filling the cracks in accordance with the recommendations of the RFA Report. The repairs to the cracks will reduce the potential for water from the washrack to contact residual petroleum hydrocarbons located beneath the washrack slab and to cause migration of the residual petroleum hydrocarbons to ground water.

- Residual petroleum hydrocarbons, reported as Total Recoverable Petroleum Hydrocarbons, were identified in boring 201H3 at depths of 2 and 5 feet below ground surface at 4,133 milligrams per kilogram and 233 milligrams per kilogram, respectively. The residual petroleum hydrocarbon release does not appear to be laterally or vertically extensive, and the residual concentrations are not anticipated to pose a significant threat to ground water which is located approximately 100 feet below ground surface.
- The washrack will remain in operation until the CSSD complex is abandoned, and the water will continue to be conveyed through OWS 760B to the sanitary sewer. OWS 760B and the associated underground storage tank will be closed in accordance with applicable regulations and procedures following the abandonment of the CSSD complex.
- SWMU 201 is located within the boundary of IRP Site 24 - the VOC Source Area. The ground water beneath SWMU 201 has been impacted by chlorinated solvents believed to originate from the primary sources identified within IRP Site 24. Ground water conditions beneath SWMU 201 will be addressed during the development of the Proposed Plan and Record of Decision for IRP Site 24 - the VOC Source Area.

Based upon the absence of evidence of a significant release of petroleum hydrocarbons at SWMU 201 and the completion of the repairs to the cracks in the washrack surface, it is recommended that the Station request no further action status for this site from the Regional Water Quality Control Board, Santa Ana Region.

Section 4

References

Airborne Systems, Incorporated. 1990. Topographic survey of Marine Corps Air Station, El Toro.

Bechtel National, Incorporated. 1997. Draft Final Phase II Remedial Investigation Report, Operable Unit 2A-Site 24, Marine Corps Air Station, El Toro, California. [Navy Contract N68711-92-D-4670, Contract Task Order 73]

CDM Federal Programs Corporation. 1997. Final Groundwater Monitoring Report, July 1997 Sampling Round, Groundwater Monitoring Program for Marine Corps Air Station, El Toro. October. [Navy Contract N68711-96-D-2029, Delivery Order 5]

County of Orange. 1997. Alternative A, El Toro Community Reuse Plan, 1997 Working Map, Land Uses/Conveyances, Gross Acres. [Prepared by P&D Consultants for the County of Orange, March 1997.]

Jacobs Engineering Group (JEG). 1993. Installation Restoration Program, Final Resource Conservation and Recovery Act Facility Assessment Report for Marine Corps Air Station, El Toro, California. [Navy Contract N68711-89-D-9296, Contract Task Order 193]

Jacobs Engineering Group (JEG). 1994. Marine Corps Air Station, El Toro, El Toro, California, Installation Restoration Program, Remedial Investigation/Feasibility Study, Final Soil Gas Survey, Technical Memorandum, Sites 24 and 25. October. [Navy Contract N68711-89-D-9296, Contract Task Order 145]

Jacobs Engineering Group (JEG). 1994. Marine Corps Air Station, El Toro: Installation Restoration Program, Phase I Remedial Investigation Technical Memorandum. [Contract N68711-89-D-9296, Contract Task Order 145]

Law/Crandall, Incorporated (LCI). 1993. Oil/Water Separator Survey, El Toro Marine Corps Air Station, El Toro, California for Department of the Navy, Southwest Division, Naval Facilities Engineering Command, IQ Contract No. 68711-92-D-4652, Delivery Order No. 001 (Law/Crandall, Incorporated (LCI), April.

Marine Corps Air Station, El Toro. 1998. Base Realignment and Closure (BRAC) Cleanup Plan.

Figures

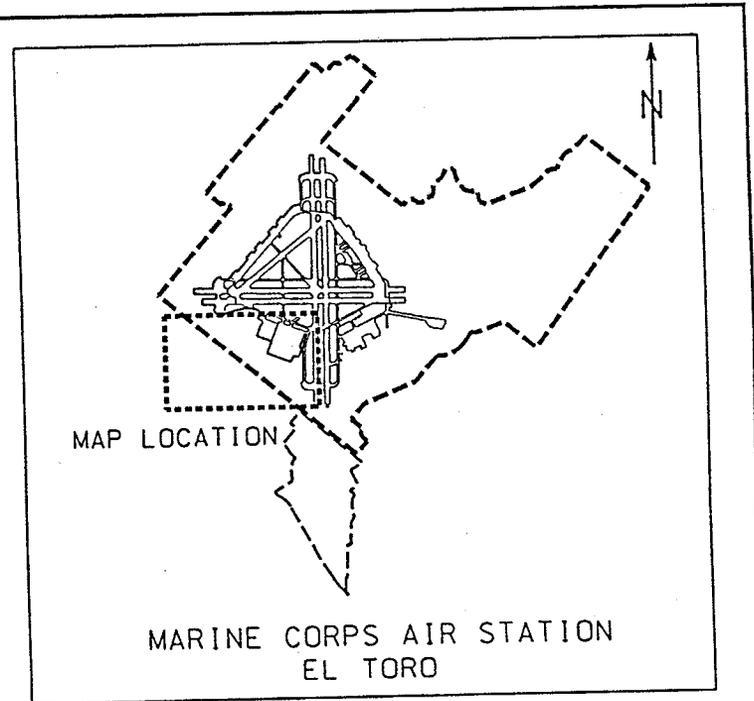
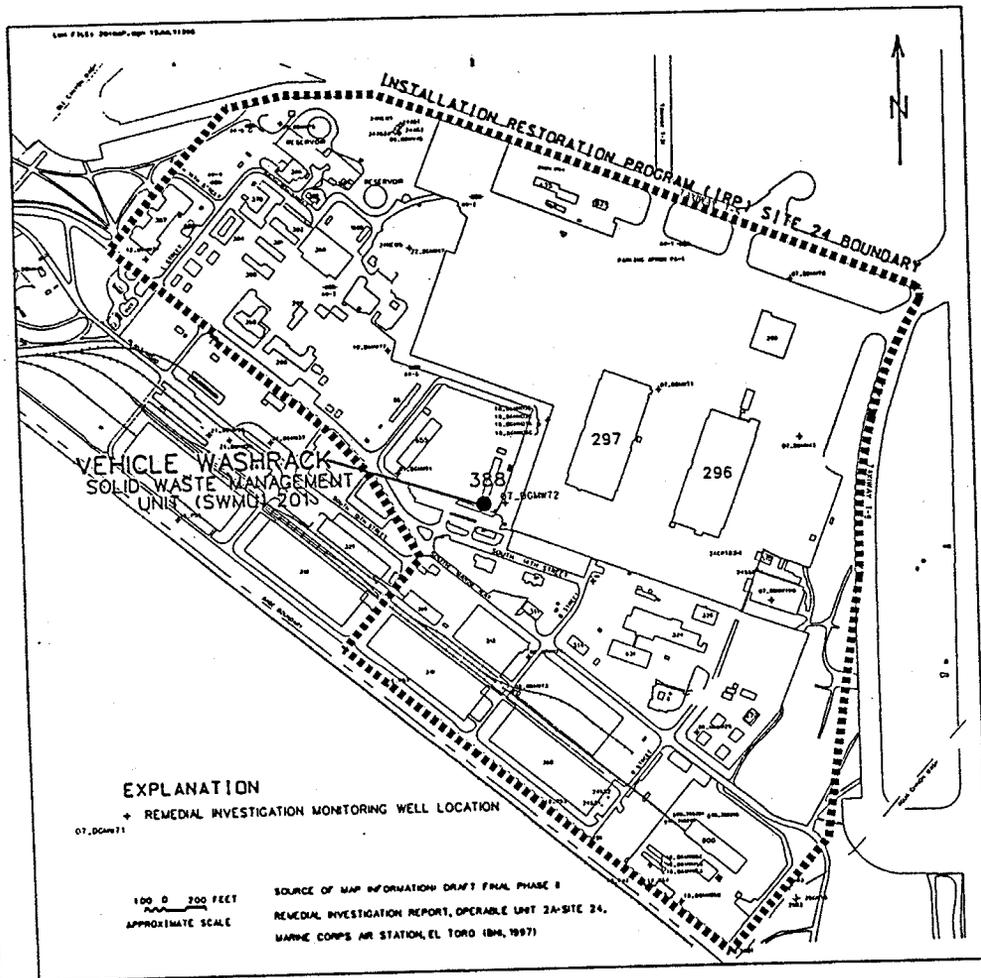


Figure 1.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 201 - VEHICLE WASHRACK

VICINITY MAP

MARINE CORPS AIR STATION, EL TORO

EXPLANATION

REUSE PRIORITIES

- H HIGH PRIORITY
- M MEDIUM PRIORITY
- L LOW PRIORITY

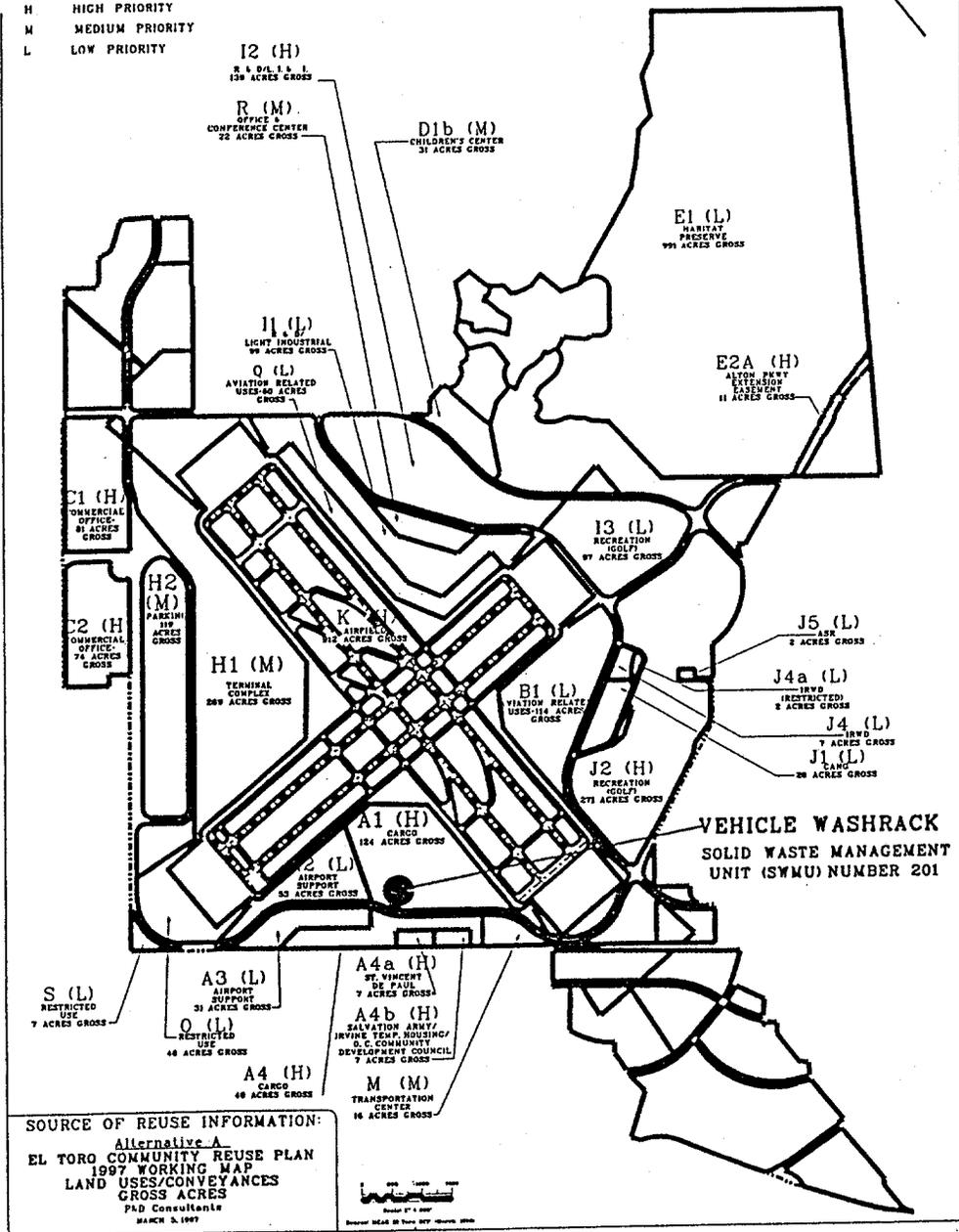


Figure 2.
 SOLID WASTE MANAGEMENT UNIT (SWMU)
 NUMBER 201 - VEHICLE WASHRACK
 TENTATIVE REUSE PARCEL
 LOCATIONS
 MARINE CORPS AIR STATION, EL TORO

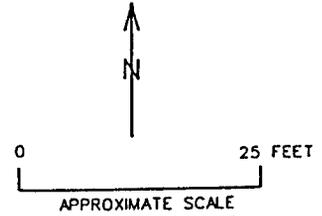
SOURCES OF MAP INFORMATION:
 BECHTEL, 1991; JEG, 1993; NAVY INSPECTIONS OF JULY 1998.

24SG464
 X

FUEL DISPENSER
 UST 388B

FIELD MAINTENANCE SHOP

BUILDING
 388



SMALL CRACKS IN CONCRETE ALONG CONTROL JOINTS

DRAIN

CONCRETE BERM (APPROXIMATELY 3 INCHES HIGH)

VEHICLE WASHRACK

SOLID WASTE MANAGEMENT UNIT (SWMU) NUMBER 201
 (PORTLAND CEMENT CONCRETE SURFACE).

07_DGMW72



ASPHALT PAVEMENT

UST 760A &
 OWS 760B

BUILDING 760
 WASHRACK UTILITY BUILDING

EXPLANATION

- RFA SAMPLE LOCATION
- ⊕ REMEDIAL INVESTIGATION MONITORING WELL LOCATION
- ⊗ REMEDIAL INVESTIGATION SOIL GAS SAMPLE LOCATION
- SURFACE CRACK LOCATIONS (APPROXIMATE)

NOTE: ALL SURFACE FEATURE LOCATIONS AND TANK
 LOCATIONS ARE APPROXIMATE.

LMH FILE: SWMU201.dgn 22 JULY 1998

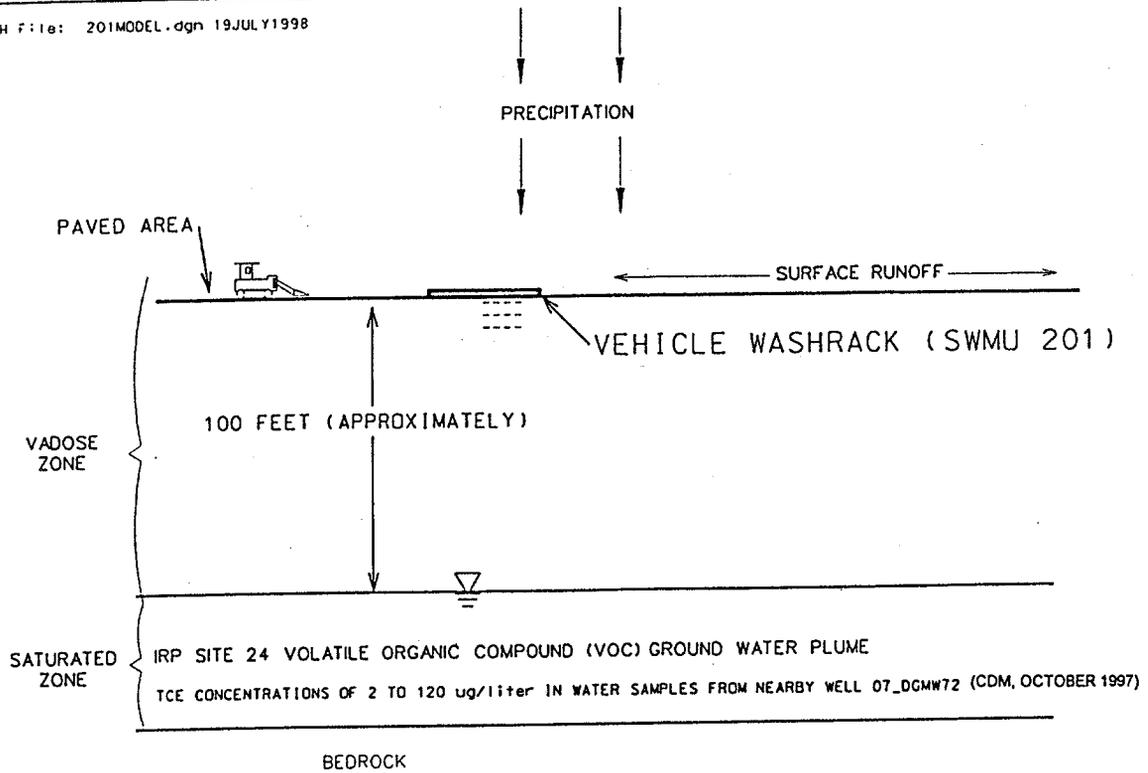
Figure 3.

SOLID WASTE MANAGEMENT UNIT (SWMU)
 NUMBER 201 - VEHICLE WASHRACK

LOCATIONS OF SURFACE
 CRACKS

MARINE CORPS AIR STATION, EL TORO

LMH File: 201MODEL.dgn 19JULY1998



LEGEND:

RECEPTORS:



WORKERS



PETROLEUM IMPACTED SOILS

PATHWAYS:



GROUND WATER

NOTE: DRAWING IS NOT TO SCALE.

Figure 4.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 201 - VEHICLE WASHRACK

CONCEPTUAL SITE MODEL

MARINE CORPS AIR STATION, EL TORO

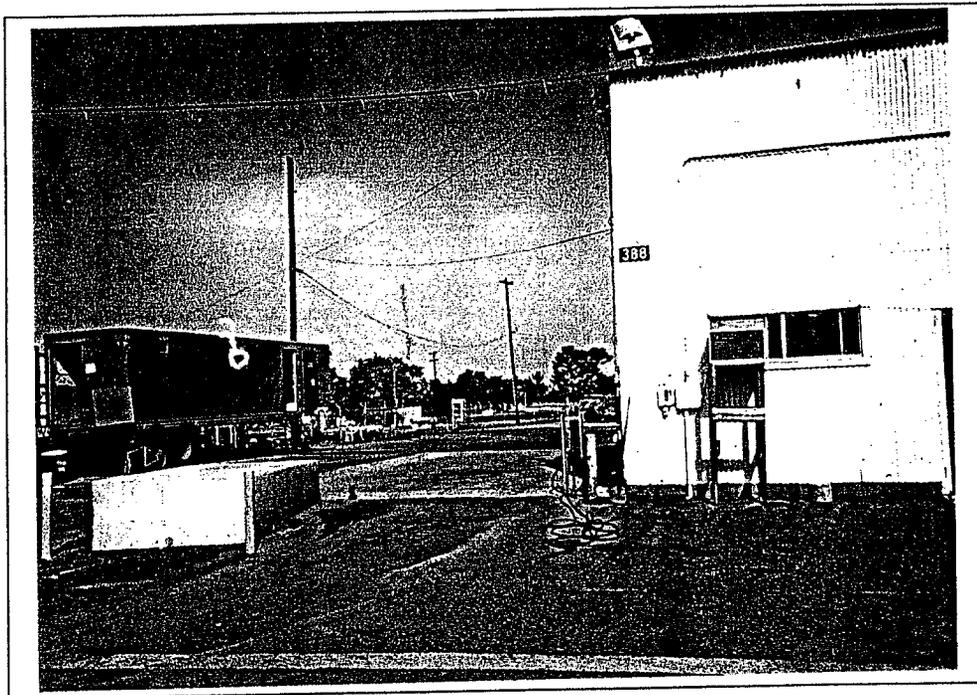
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Appendices

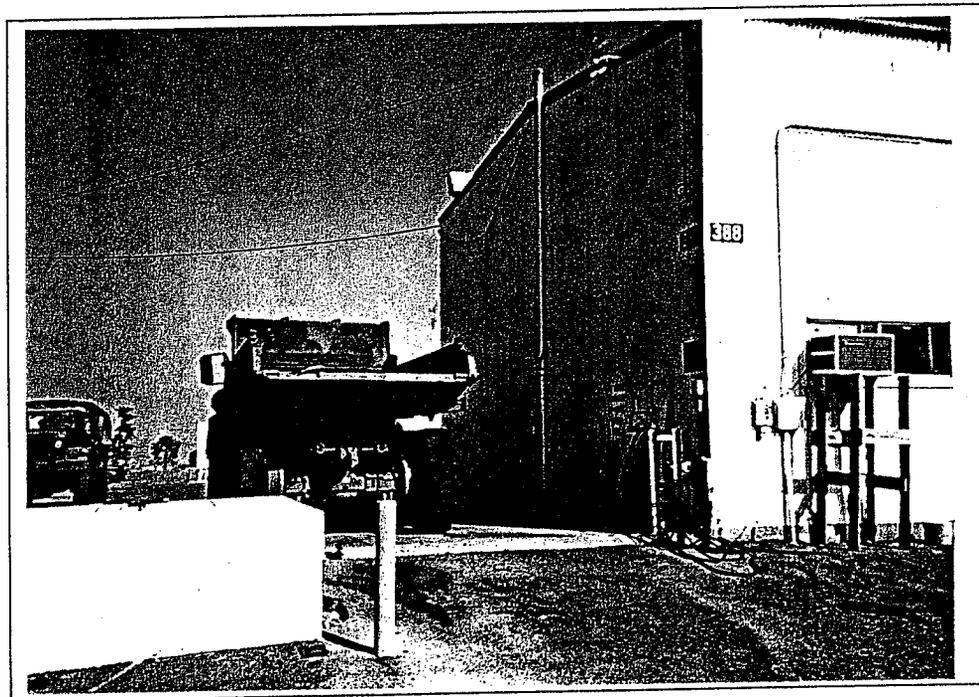
Appendix A

Site Photographs

REPAIRS TO VEHICLE WASHRACK
Solid Waste Management Unit (SWMU) Number 201
Petroleum Corrective Action Program
MARINE CORPS AIR STATION, EL TORO, CALIFORNIA

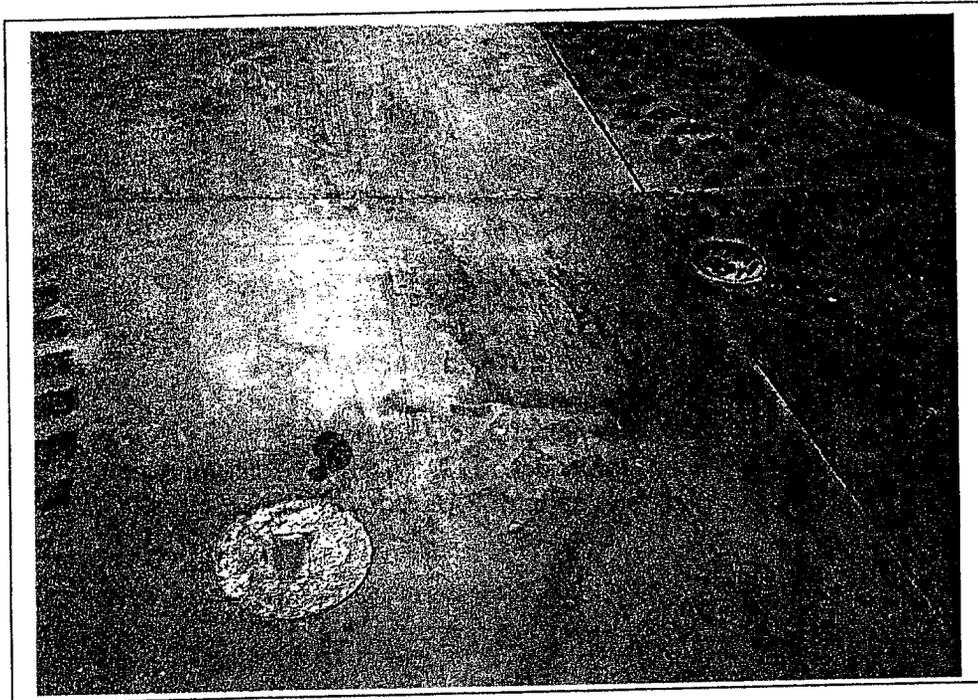


Photograph 1. Vehicle Washrack at Building 388 Looking West-Northwest.
Date of Photograph: 13 July 1998.

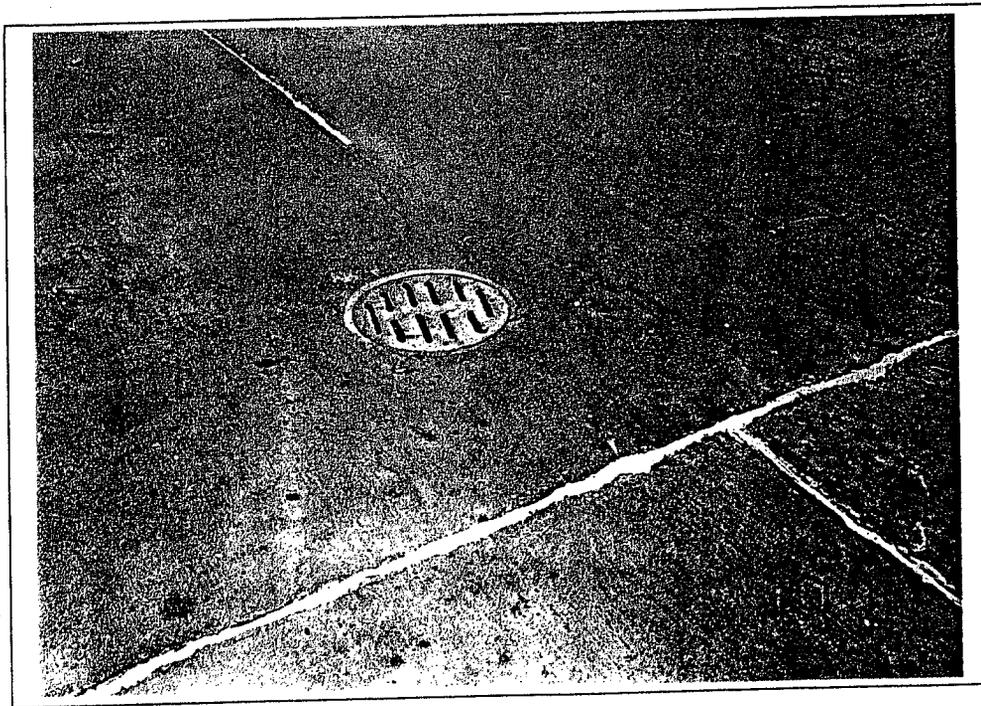


Photograph 2. Vehicle Washrack at Building 388 with Typical Combat Support Vehicle.
Date of Photograph: 15 July 1998.

REPAIRS TO VEHICLE WASHRACK
Solid Waste Management Unit (SWMU) Number 201
Petroleum Corrective Action Program
MARINE CORPS AIR STATION, EL TORO, CALIFORNIA



Photograph 3. Minor Spalling and Surface Cracks on Portland Cement Concrete Washrack Surface along Control Joint.
Date of Photograph: 13 July 1998.



Photograph 4. Vehicle Washrack at Building 388 following Repairs to Surface Cracks.
Date of Photograph: 17 July 1998.

Appendix B

Record Search Documentation

Ground Water Conditions (CDM)
RCRA Facility Assessment (RFA) Sample Locations and other RFA Documentation (JEG)
BRAC Cleanup Plan Extracts (U.S. Marine Corps Air Station, El Toro)

Ground Water Conditions (CDM)

FINAL

EXTRACTS

GROUNDWATER MONITORING REPORT
JULY 1997 SAMPLING ROUND

GROUNDWATER MONITORING PROGRAM
FOR
MARINE CORPS AIR STATION EL TORO
EL TORO, CALIFORNIA

Contract No. N68711-96-D-2029
Delivery Order 005

Prepared for:

SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 Pacific Highway
San Diego, California 92132

Prepared by:

CDM FEDERAL PROGRAMS CORPORATION
3760 Convoy Street, Suite 210
San Diego, California 92111

October 1997

Table 4-1: SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS
MCAS El Toro Groundwater Monitoring Program

Station ID	Base Screen Depth (Ft BGS)	Sample Date	PRIMARY VOCs DETECTED AND REGULATORY STANDARDS -- All Results in Micrograms per Liter (ug/L)												OTHER VOCs DETECTED	
			TCE 50	PCE 50	CCl ₄ 0.5	1,1-DCE 60	1,2-DCE (total)	Chloroform 1000	Chloro- methane	Benzene 10	Toluene 1000	Ethyl- benzene 6800	Xylenes (total) 17500	Freon-113	Compound	Concent
07_DBMW100	171	8-Dec-92	1.0U	1.0U	0.8U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	1.0U			
		4-Jun-93	1.0U	1.0U	0.8U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	1.0U			
		31-Jan-96	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	10.0U	1.0U	1.0U	1.0U	1.0U	10.0U		
		14-Nov-96	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	10.0U	1.0U	1.0U	1.0U	1.0U	10.0U		
		20-Mar-97	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	10.0U	1.0U	1.0U	1.0U	1.0U	10.0U		
		10-Jul-97	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	10.0U	1.0U	1.0U	1.0U	1.0U	10.0U		
07_DGMW71	155	15-Dec-92	23.0	1.0U	1.0U	0.7U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	1.0U			
		22-Jun-93	21.0	1.0U	1.0U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	1.0U	10.0U		
		13-Feb-96	9.0	1.0U	1.0U	1.0U	1.0U	1.0U	10.0U	1.0U	3.0	1.0U	1.0U	1.0U		
		21-Nov-96	10.0	1.0U	1.0U	1.0U	1.0U	1.0U	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		20-Mar-97	5.0	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
07_DGMW72	150	19-Nov-92	120.0E	2.0	3.0	1.0U	1.0U	4.0	2.0U	1.0U	1.0U	1.0U	1.0U			
		21-Jul-93	2.0	1.0U	1.0U	1.0U	1.0U	1.0U	2.0U	1.0U	1.0U	1.0U	1.0U			
		15-Oct-93	100.0D	2.0	4.0	1.0U	1.0U	4.0	2.0U	1.0U	1.0U	1.0U	1.0U			
		13-Feb-96	49.0	1.0U	2.0U	1.0U	1.0U	3.0	10.0U	1.0U	4.0	1.0U	1.0U	10.0U		
		21-Nov-96	113.0	1.0	2.0	1.0U	1.0U	3.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		20-Mar-97	91.0	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U	3.0U		
07_DGMW91	150	18-Dec-92	48.0	3.0	2.0	1.0U	1.0U	3.0	2.0U	1.0U	1.0U	1.0U	1.0U			
		21-Jul-93	55.0	4.0	2.0	1.0U	1.0U	4.0	2.0	1.0U	1.0U	1.0U	1.0U	10.0U		
		8-Feb-96	62.0	4.0	2.0	1.0U	1.0U	3.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		21-Nov-96	104.0	5.0	2.0	0.6U	1.0	4.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		24-Mar-97	88.0	5.0	2.0	1.0U	0.9U	3.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		9-Jul-97	75.0	8.0	2.0	1.0U	0.7U	3.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
08_DGMW73	130	12-Feb-92	140.0E	7.0	0.9U	8.0	1.0U	9.0	0.4U	0.3U	1.0U	1.0U	1.0U			1,1,2-TRICHLOROETHANE 20
		20-Jul-93	100.0D	5.0	0.7U	4.0	1.0U	8.0	2.0U	1.0U	1.0U	1.0U	1.0U			1,1,2-TRICHLOROETHANE 30
		9-Feb-96	40.0	1.0U	1.0U	1.0U	1.0U	5.0	10.0U	1.0U	4.0	1.0U	1.0U	10.0U		
		2-Dec-96	62.0	1.0U	1.0U	0.8U	2.0	5.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		2-Dec-96	62.0	1.0U	1.0U	0.9U	2.0	5.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		20-Mar-97	39.0	1.0U	1.0U	1.0U	1.0U	1.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
08_DGMW74	130	16-Nov-92	100.0E	8.0	6.0	5.0	1.0U	6.0	0.9U	1.0U	1.0U	1.0U	1.0U			
		20-Jul-93	100.0D	5.0	5.0	3.0	1.0U	7.0	3.0	1.0U	1.0U	1.0U	1.0U			
		14-Feb-96	17.0	1.0	2.0	1.0U	1.0U	5.0	10.0U	1.0U	5.0	1.0U	1.0U	10.0U		
		13-Nov-96	103.0	1.0	2.0	1.0	1.0	6.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		
		19-Mar-97	10.0	3.0U	3.0U	3.0U	3.0U	4.0	30.0U	3.0U	3.0U	3.0U	3.0U	3.0U		
		19-Mar-97	10.0	3.0U	3.0U	3.0U	3.0U	4.0	30.0U	3.0U	3.0U	3.0U	3.0U	3.0U		
		7-Jul-97	72.0	0.8U	1.0	1.0U	0.7U	4.0	10.0U	1.0U	1.0U	1.0U	1.0U	1.0U		

Table B-1: WATER LEVEL MEASUREMENTS AND GROUNDWATER ELEVATIONS
 MCAS El Toro Groundwater Monitoring Program

STATION ID	WELL TYPE	SCREEN INTERVAL (feet BGS)	TOP OF CASING (feet MSL)	MEASUREMENT DATE	DEPTH TO WATER (feet TOC)	WATER LEVEL ELEVATION (feet MSL)	CHANGE FROM PRIOR (+ or - feet)
07_DBMW70	WT	125 - 165	293.44	12-Jan-96	122.38	171.06	
			293.44	13-Feb-96	122.04	171.40	0.34
			293.44	27-Feb-96	121.84	171.60	0.20
			293.44	27-Mar-96	121.60	171.84	0.24
			293.44	31-Oct-96	121.90	171.54	-0.30
			293.44	26-Nov-96	121.40	172.04	0.50
			293.44	26-Dec-96	121.46	171.98	-0.06
			293.44	23-Jan-97	120.92	172.52	0.54
			293.44	26-Feb-97	120.64	172.80	0.28
			293.44	27-Mar-97	120.44	173.00	0.20
			293.44	26-Jun-97	120.86	172.58	-0.42
293.44	12-Aug-97	120.92	172.52	-0.06			
07_DGMW71	WT	115 - 155	283.66	12-Jan-96	109.60	174.06	
			283.66	13-Feb-96	109.21	174.45	0.39
			283.66	27-Feb-96	109.02	174.64	0.19
			283.66	27-Mar-96	108.80	174.86	0.22
			283.66	31-Oct-96	109.08	174.58	-0.28
			283.66	26-Nov-96	108.56	175.10	0.52
			283.66	26-Dec-96	108.66	175.00	-0.10
			283.66	23-Jan-97	108.14	175.52	0.52
			283.66	26-Feb-97	107.84	175.82	0.30
			283.66	27-Mar-97	107.84	175.82	0.00
			283.66	26-Jun-97	108.20	175.46	-0.36
283.66	12-Aug-97	108.30	175.36	-0.10			
07_DGMW72	WT	110 - 150	276.85	11-Jan-96	102.94	173.91	
			276.85	13-Feb-96	102.70	174.15	0.24
			276.85	27-Feb-96	102.53	174.32	0.17
			276.85	27-Mar-96	102.19	174.66	0.34
			276.85	30-Oct-96	102.12	174.73	0.07
			276.85	26-Nov-96	101.95	174.90	0.17
			276.85	26-Dec-96	102.04	174.81	-0.09
			276.85	23-Jan-97	101.64	175.21	0.40
			276.85	26-Feb-97	101.34	175.51	0.30
			276.85	27-Mar-97	101.35	175.50	-0.01
			276.85	26-Jun-97	100.55	176.30	0.80
276.85	12-Aug-97	101.66	175.19	-1.11			
07_DGMW91	WT	110 - 150	273.39	11-Jan-96	102.92	170.47	
			273.39	8-Feb-96	102.90	170.49	0.02
			273.39	27-Feb-96	102.92	170.47	-0.02
			273.39	27-Mar-96	102.45	170.94	0.47
			273.39	30-Oct-96	102.48	170.91	-0.03
			273.39	26-Nov-96	102.28	171.11	0.20
			273.39	27-Dec-96	102.85	170.54	-0.57
			273.39	23-Jan-97	101.97	171.42	0.88
			273.39	26-Feb-97	101.79	171.60	0.18
			273.39	27-Mar-97	101.64	171.75	0.15
			273.39	26-Jun-97	101.86	171.53	-0.22
273.39	12-Aug-97	102.02	171.37	-0.16			
08_DGMW73	WT	90 - 130	263.77	11-Jan-96	84.40	179.37	
			263.77	14-Feb-96	83.72	180.05	0.68
			263.77	27-Feb-96	83.74	180.03	-0.02
			263.77	27-Mar-96	83.54	180.23	0.20
			263.77	30-Oct-96	83.56	180.21	-0.02
			263.77	26-Nov-96	83.39	180.38	0.17
			263.77	26-Dec-96	83.50	180.27	-0.11
			263.77	23-Jan-97	83.17	180.60	0.33
			263.77	26-Feb-97	82.98	180.79	0.19
			263.77	27-Mar-97	82.80	180.97	0.18
			263.77	26-Jun-97	82.96	180.81	-0.16
263.77	11-Aug-97	83.08	180.69	-0.12			

SOUTHWESTNAVFACENGCOM
CODE 56MC.LMH
SAN DIEGO, CA 92101

**RCRA Facility Assessment (RFA) Sample Locations and other RFA
Documentation (JEG)**

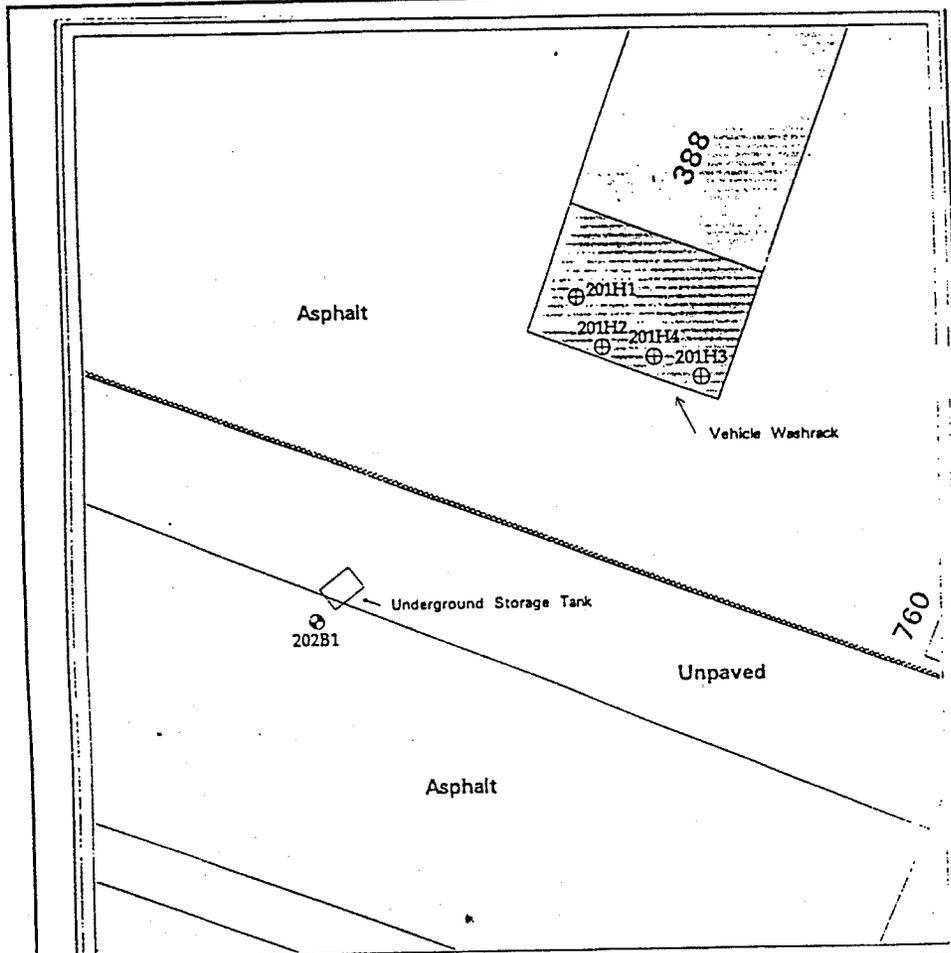


Figure 62 Sample Location Map

Boring Location and Number:

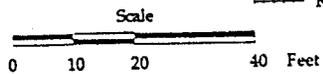
- ⊕ 123H4 5' Deep Boring
- ⊕ 123B4 25' Deep Boring
- ▲ 123A4 60' Long, Angle Boring

Features:

- ▭ Building
- ▭ Concrete
- ⋯ Fence
- Railroad

SWMU/AOC Number and Type:

- 201 - Vehicle Washrack
- 202 - Underground Storage Tank



MCAS El Toro
RCRA Facility Assessment

Source:
Jacobs Engineering Group (JEG), 1993.
*Installation Restoration Program, Final Resource
Conservation and Recovery Act Facility Assessment
Report for Marine Corps Air Station, El Toro, California.*

EXHIBIT B-2.

SOLID WASTE MANAGEMENT UNIT (SWMU)
NUMBER 201 - VEHICLE WASHRACK

RCRA FACILITY ASSESSMENT
SAMPLE LOCATIONS

MARINE CORPS AIR STATION, EL TORO

MARINE CORPS AIR STATION EL TORO
EL TORO, CALIFORNIA
INSTALLATION RESTORATION PROGRAM
FINAL RESOURCE CONSERVATION
AND RECOVERY ACT (RCRA)
FACILITY ASSESSMENT REPORT

VOLUME I

16 July 1993

EXTRACTS

PREPARED BY:
Southwest Division, Naval Facilities
Engineering Command
1220 Pacific Highway
San Diego, California 92132-5190

THROUGH:
CONTRACT #N68711-89-D-9296
CTO #193
DOCUMENT CONTROL NO:
CLE-C01-01F193-S2-0001

WITH:
Jacobs Engineering Group Inc.
3655 Nobel Drive, Suite 200
San Diego, California 92122

In association with:
International Technology Corporation
CH2M HILL

Table 6-15
Recommendations for SWMUs/AOCs
MCAS EI Toro RFA

SWMU No.	SWMU/AOC Type	Recommendation (FA/NFA)	Description of Further Action	Rationale for Further Action
160	Hazardous Waste Storage Area	NFA	--	--
162	Underground Storage Tank	NFA	--	--
164	Vehicle Wash Rack	NFA	--	--
171	Hazardous Waste Storage Area	FA	Shallow soil borings	Potential for SVOCs in surface soil
172	Hazardous Waste Storage Area	NFA	--	--
173	Oil/Water Separator	FA	Additional boring(s)	Petroleum hydrocarbon contamination, unknown extent
175	Oil/Water Separator	FA	Additional boring(s)	Petroleum hydrocarbon contamination, unknown extent
176	Underground Storage Tank	FA	Additional boring(s)	Petroleum hydrocarbon contamination, unknown extent
179	Oil/Water Separator	NFA	--	--
181	Landfarming Area	NFA	--	--
186	Hazardous Waste Storage Area	NFA	--	--
187	Underground Storage Tank	NFA	--	--
188	Underground Storage Tank	NFA	--	--
193	Oil/Water Separator	NFA	--	--
194	Former Incinerator Site	FA	Additional boring(s)	Petroleum hydrocarbon contamination, unknown extent
195	Vehicle Wash Rack	NFA	--	--
196	Oil/Water Separator	NFA	--	--
198	Vehicle Wash Rack	FA	Repair cracks in pavement	Prevent future migration of petroleum hydrocarbons
199	Oil/Water Separator	FA	Leak test/ inspection of separator	Moderate petroleum hydrocarbon contamination at 15-foot dept
201	Vehicle Wash Rack	FA	Repair cracks in pavement	Prevent future migration of petroleum hydrocarbons
202	Underground Storage Tank	NFA	--	--
204	Vehicle Wash Rack	FA	Repair cracks in pavement	Prevent future migration of petroleum hydrocarbons
205	Oil/Water Separator	NFA	--	--
208	Oil/Water Separator	NFA	--	--
211	Oil/Water Separator	NFA	--	--
213	Vehicle Wash Rack	FA	Repair cracks in pavement	Prevent future migration of petroleum hydrocarbons
214	Underground Storage Tank	NFA	--	--
220	Oil/Water Separator	NFA	--	--
222	Hazardous Waste Storage Area	NFA	--	--
223	Hazardous Waste Storage Area	NFA	--	--

C.S.C



MCAS EL TORO RCRA FACILITY ASSESSMENT -- SAMPLING VISIT RESULTS

SWMU/AOC NUMBER	SWMU/AOC TYPE (FIGURE)	BORING NUMBER	SAMPLE DEPTH (FEET)	ANALYTICAL TEST RESULTS							RECOMMENDATIONS	
				TPH (mg/kg)	TFH (mg/kg)		VOCs (ug/kg)	SVOCs (ug/kg)	PESTICIDES/PCBs (ug/kg)	METALS (mg/kg)	Action	Rationale
					Gasoline	Diesel						
201	Vehicle Wash Rack (62)	H1	2	ND	NA	NA	Methylene Chloride-4 BJ * Acetone-11 BJ * 2-Butanone-3 BJ *	NA	NA	NA	NA	Repair cracks in pavement. To prevent future migration of petroleum hydrocarbons. TPH/TFH > 1000 ppm VOCs < CRDL CRDL - Contract Required Detection Limit
			5	ND	NA	NA	Methylene Chloride-6 BJ * Acetone-9 BJ * 2-Butanone-3 BJ *	NA	NA	NA	NA	
			5 (Duplicate)	ND	NA	NA	Methylene Chloride-5 BJ * Acetone-32 B * 2-Butanone-3 BJ *	NA	NA	NA	NA	
		H2	2	ND	NA	NA	Methylene Chloride-6 BJ * Acetone-22 B * 2-Butanone-3 BJ *	NA	NA	NA	NA	
			5	ND	NA	NA	Methylene Chloride-6 BJ * Acetone-16 B * 2-Butanone-3 BJ *	NA	NA	NA	NA	
		H3	2	4133	NA	NA	Methylene Chloride-820 BJ * Acetone-810 BJ * 2-Butanone-1300 BJ *	NA	NA	NA	NA	
			5	233	NA	NA	Methylene Chloride-8 BJ * Acetone-16 B * 2-Butanone-4 BJ * Xylene-8 J	NA	NA	NA	NA	
		H4	2	ND	NA	NA	Methylene Chloride-6 BJ * Acetone-19 B * 2-Butanone-3 BJ *	NA	NA	NA	NA	
			5	ND	NA	NA	Methylene Chloride-7 BJ * Acetone-9 BJ * 2-Butanone-2 BJ *	NA	NA	NA	NA	

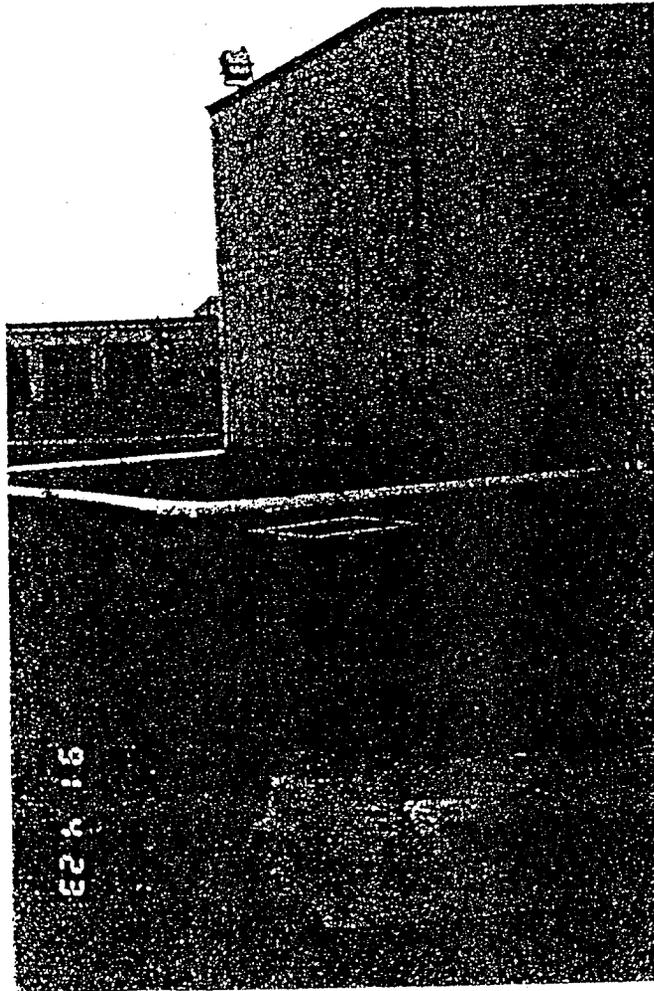
Evaluation Form
SWMU/Area of Concern
Number 201

Name: Vehicle Washrack 760

Location: Adjacent to south side of Bldg. 388

Size: 540 sq ft

Date of Site Visit: 23 April 91



Method of Operation:

currently active

**Evaluation Form
SWMU/Area of Concern
Number 201**

Unit Characteristics

The washrack is located adjacent to the southwest wall of Building 388. The washrack is bordered by asphalt on three sides and the southwest wall of Building 388. It measures approximately 18 ft x 30 ft. The washrack consists of a concrete wash area surrounded by a 4 inch concrete berm. A drain leading to oil/water separator 760-B (SWMU/AOC Number 203) is located in the center of the washrack. The wash surface has several large cracks and is lightly stained.

A drain grate is located about 3 ft from the southwest corner of the washrack. The grate measures approximately 3 ft x 4 ft in size. It does not appear to be a storm drain because the grate is much smaller than the typical grates observed leading to the storm drain. It is possible that it leads to the oil/water separator for the washrack. A liquid surface with an oily sheen is visible at the bottom of the drain.

Waste Characteristics

Oily water

Possible Migration Pathways

Storm drain
Oil/water separator
Soil

Evidence of Release

Light stains on wash surface which is cracked

Exposure Potential

On-Station personnel

Recommendations

Because this wash area contains stains and the concrete surface is cracked, it is possible that soil has been impacted by the washrack operation. A sampling visit is recommended for this area.

SOUTHWESTNAVFACENGCOM
CODE 56MC.LMH
SAN DIEGO, CA 92101

BRAC Cleanup Plan Extracts (U.S. Marine Corps Air Station, El Toro)

EXTRACTS

Base Realignment and Closure Cleanup Plan (BCP)



For
Marine Corps Air Station
El Toro, CA

March 1998

Table 3-13
Summary of SWMUs/AOCs
(Sheet 13 of 20)

SWMU/AOC Number ¹	Database Tracking	Previous Parcel	New Parcel	RFA Recommendation	Type/Description	Location, Building, or Number	Sampling Visit	Comments	ECP Area Type ²
196	OWS 758A	4A	A2	NFA	Oil/water separator	758	X	RFA recommended NFA. DTSC concurrence (letter dated 7/23/96). Associated with UST 758B.	2
197	UST 758B	4A	A2	NFA	Active UST	758	X	Combined with SWMU/AOC 196 (OWS 758A). Tank will be removed following operational closure.	2
198	RFA 198	4A	A1	FA	Vehicle wash rack	759	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
199	OWS 759A	4A	A1	FA in CP	Oil/water separator	759	X	RFA (Jacobs 1993) recommended leak test/inspection of OWS. Associated with UST 759B.	2
200	UST 759B	4A	A1	FA in CP	Active UST	759	X	Combined with SWMU/AOC 199 (OWS 759A). Tank will be removed following operational closure.	2
201	RFA 201	4A	A1	FA	Vehicle wash rack	760	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
202	UST 760A	4A	A1	NFA	Active UST	760	X	RFA (Jacobs 1993) recommended NFA. Associated with OWS 760B. Tank will be removed following operational closure.	2
203	OWS 760B	4A	A1	NFA	Oil/water separator	760	X	Combined with SWMU/AOC 202 (UST 760A). NFA concurrence by DTSC (letter dated 7/23/96).	2
204	RFA 204	5A	B1	FA	Vehicle wash rack	761	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
205	OWS 761A	5A	B1	NFA	Oil/water separator	761	X	NFA concurrence by DTSC (letter dated 7/23/96). Associated with UST 761B.	2
206	UST 761B	5A	B1	NFA	Active UST	761	X	Combined with SWMU/AOC 205 (OWS 761A). Tank will be removed following operational closure.	2
208	OWS 762A	3A	J4	NFA	Oil/water separator	762	X	NFA concurrence by DTSC (letter dated 7/23/96). Associated with UST 762B. The tank was removed during 1997 and regulatory closure by OCHCA was achieved on 7/2/97.	2
209	UST 762B	3A	J4	NFA	Inactive UST	762	X	Combined with SWMU/AOC 208 (OWS 762A). The tank was removed during 1997 and regulatory closure by OCHCA was achieved on 7/2/97.	2
210	RFA 210	5A	Q	NFA	Vehicle wash rack	763		Source: 1989 RWQCB letter. Surface free of defects. NFA recommendation not explicitly stated in RFA (Table 6-15), but concurred with through agency acceptance of the EBS.	1
211	OWS 763A	5A	Q	NFA	Oil/water separator	763	X	NFA concurrence by DTSC (letter dated 7/23/96). Associated with UST 763B.	2
212	UST 763B	5A	II	NFA	Active UST	763	X	Combined with SWMU/AOC 211 (OWS 763A). Tank will be removed following operational closure.	2
213	RFA 213	2A	R	FA	Vehicle wash rack	764	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
214	UST 764A	2A	R	NFA	Active UST	764	X	RFA (Jacobs 1993) recommended NFA. Associated with OWS 764B. Tank will be removed following operational closure.	2
215	OWS 764B	2A	II	NFA	Oil/water separator	764	X	Combined with SWMU/AOC 214 (UST 764A). NFA concurrence by DTSC (letter dated 7/23/96).	2

SOURCE:

United States Marine Corps Air Station, El Toro. 1998. *Base Realignment and Closure Cleanup Plan for Marine Corps Air Station, El Toro*. March.

Table 3-13
Summary of SWMUs/AOCs
(Sheet 13 of 20)

SWMU/ AOC Number ¹	Database Tracking	Previous Parcel	New Parcel	RFA Recommendation	Type/Description	Location, Building, or Number	Sampling Visit	Comments	ECP Area Type ²
196	OVS 758A	4A	A2	NFA	Oil/water separator	758	X	RFA recommended NFA. DTSC concurrence (letter dated 7/23/96). Associated with UST 758A.	2
197	UST 758B	4A	A2	NFA	Active UST	758	X	Combined with SWMU/AOC 196 (OVS 758A). Tank will be removed following operational closure.	2
198	RFA 198	4A	A1	FA	Vehicle wash rack	759	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
199	OVS 759A	4A	A1	FA in CP	Oil/water separator	759	X	RFA (Jacobs 1993) recommended leak test/inspection of OVS. Associated with UST 759B.	2
200	UST 759B	4A	A1	FA in CP	Active UST	759	X	Combined with SWMU/AOC 199 (OVS 759A). Tank will be removed following operational closure.	2
201	RFA 201	4A	A1	FA	Vehicle wash rack	760	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
202	UST 760A	4A	A1	NFA	Active UST	760	X	RFA (Jacobs 1993) recommended NFA. Associated with OVS 760B. Tank will be removed following operational closure.	2
203	OVS 760B	4A	A1	NFA	Oil/water separator	760	X	Combined with SWMU/AOC 202 (UST 760A). NFA concurrence by DTSC (letter dated 7/23/96).	2
204	RFA 204	5A	B1	FA	Vehicle wash rack	761	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
205	OVS 761A	5A	B1	NFA	Oil/water separator	761	X	NFA concurrence by DTSC (letter dated 7/23/96). Associated with UST 761B.	2
206	UST 761B	5A	B1	NFA	Active UST	761	X	Combined with SWMU/AOC 205 (OVS 761A). Tank will be removed following operational closure.	2
208	OVS 762A	3A	J4	NFA	Oil/water separator	762	X	NFA concurrence by DTSC (letter dated 7/23/96). Associated with UST 762B. The tank was removed during 1997 and regulatory closure by OCHCA was achieved on 7/2/97.	2
209	UST 762B	3A	J4	NFA	Inactive UST	762	X	Combined with SWMU/AOC 208 (OVS 762A). The tank was removed during 1997 and regulatory closure by OCHCA was achieved on 7/2/97.	2
210	RFA 210	5A	Q	NFA	Vehicle wash rack	763		Source: 1989 RWQCB letter. Surface free of defects. NFA recommendation not explicitly stated in RFA (Table 6-15), but concurred with through agency acceptance of the EBS.	1
211	OVS 763A	5A	Q	NFA	Oil/water separator	763	X	NFA concurrence by DTSC (letter dated 7/23/96). Associated with UST 763B.	2
212	UST 763B	5A	II	NFA	Active UST	763	X	Combined with SWMU/AOC 211 (OVS 763A). Tank will be removed following operational closure.	2
213	RFA 213	2A	R	FA	Vehicle wash rack	764	X	RFA recommended repair of cracks in pavement (Jacobs 1993).	6
214	UST 764A	2A	R	NFA	Active UST	764	X	RFA (Jacobs 1993) recommended NFA. Associated with OVS 764B. Tank will be removed following operational closure.	2
215	OVS 764B	2A	II	NFA	Oil/water separator	764	X	Combined with SWMU/AOC 214 (UST 764A). NFA concurrence by DTSC (letter dated 7/23/96).	2

Table 3-14
Oil/Water Separator Inventory
(Sheet 6 of 6)

Database Tracking	OW Number	Previous Parcel	New Parcel	Location/ Nearest Building Number	Year Installed	Capacity (gal)/ Tank Material	Status	Closed	Comments	Further Action	Location Status ¹	Contents	UST Associated with OWS	RFA Sampling (X)	Document Source ²	ECP Area Type
OWS 1702	170	1B	112	1702	Unknown	550/ Steel	Active		From ICR: No access to OWS ports; OWS appears sound; adjacent UST and its piping has secondary containment OWS scheduled for general maintenance/cleaning according to El Toro staff.		1C	Oil/water	Unknown		C,F	7

Notes:

¹ The following codes describe the location of OWSs:

- 1C - Location confirmed.
- S - OWS location identified on historical as built plan. Location to be confirmed by field survey.
- SB - Location of building confirmed. OWS location to be determined by field survey.

² The letters in this column correspond to the following sources of information:

- A - MCAS El Toro, 1993. Management Overview of Storage Tanks.
- B - EG&G Idaho, Inc., 1990. Draft USMC MCAS El Toro Underground Storage Tank Survey Report.
- C - Law/Crandall, Inc., 1993. Oil/Water Separator Survey, El Toro Marine Corps Air Station.
- CF - Device under Conditional Exemption for Specified Wastestreams per a letter from DTSC dated 1/10/94.
- D - Jacobs Engineering Group, 1993. MCAS El Toro Final RCRA Facility Assessment Report.
- E - Letter from the Dept. of Toxic Substance Control (DTSC) to MCAS El Toro on Acknowledgment of Units Operating Under Conditional Authorization and/or Conditional Exemption.
- F - Personal communications with El Toro Staff in February 1994.
- G - Personal communications with El Toro Staff in January 1996.

³ An asterisk following the area type indicates that the area type designation has changed since the March 1996 BCP.

Abbreviations

- DTSC - Cal-EPA Department of Toxic Substances Control
- EBS - Environmental Baseline Study
- ECP - environmental condition of property
- FA - further action
- gal - gallon(s)
- gpm - gallons per minute
- ICR - Law/Crandall Report
- MCAS - Marine Corps Air Station

- USMC - United States Marine Corps
- NFA - no further action
- NPDES - National Pollution Discharge Elimination System
- OWS - oil/water separator
- RFA - RCRA Facility Assessment
- RWQCB - Regional Water Quality Control Board
- SWMU - Solid Waste Management Unit
- UST - underground storage tank